UNIVERSITY OF GONDAR

COLLEGE OF MEDICINE AND HEALTH SCIENCES, SCHOOL OF MEDICINE

DEPATMENT OF OPTOMETRY

PREVALENCE AND ASSOCIATED FACTORS OF OPHTHALMIC SELF-MEDICATION AMONG ADULT OPHTHALMIC PATIENTS IN GONDAR CITY, NORTHWEST ETHIOPIA.

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Prevalence and associated factors of ophthalmic self-medication among adult ophthalmic patients in Gondar city, Northwest Ethiopia, 2017

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Acronyms

AOR	Adjusted Odds Ratio
BSc	Bachelor of Science
CI	Confidence Interval
COR	Crude Odds Ratio
Epi info	Epidemiological Information
ETB	Ethiopian Total Birr
GUH	Gondar University Hospital
MSc	Master of Science
OPD	Out Patient Department
OR	Odds Ratio
OSM	Ophthalmic Self-Medication
OTC	Over the Counter
SM	Self-Medication
SPSS	Statistical Package for Social Sciences
SRS	Simple Random Sampling
SRS	Systematic Random Sampling
WHO	World Health Organization

Abstract

Introduction: Worldwide, the prevalence of ophthalmic self-medication ranges from 23.3% to 76.3%. Self-medication is the act of procuring a drug for self-recognized diseases. Inappropriate use of ophthalmic self-medication has several disadvantages such as antimicrobial resistance and side effects that range from mild discomfort to vision loss. However, there was limited information regarding prevalence and associated factors of ophthalmic self-medication in the study area.

Objective: The main objective of this study was to determine the proportion and associated factors of ophthalmic self-medication among adult ophthalmic patients in Gondar city.

Methods: A community based cross-sectional study was conducted on 322 adults selected by multistage sampling technique in Gondar city from April 20 to May 7, 2017. Data was collected through a face to face interview using a pretested structured questionnaire. Binary logistic regression was fitted and variables which had P value of <0.05 in the multivariable model were considered as statistically significantly associated.

Results: In this study, Three hundred twenty two (322) participants were involved giving a response rate of 96.6%. Of those, 51.6% were females. The median age of the participants was 40.00 years. The prevalence of ophthalmic self-medication was 30.4% (95% CI (30.35%-30.45%). At 95%confidence level, dissatisfaction on health services [AOR = 3.901 (1.922, 7.916)] lack of awareness of side effects [AOR 3.742 (1.944, 7.205)], lack of access of eye care services [AOR 4.503 (2.458, 8.250)] and easily accessibility of ophthalmic medications [AOR 4.075 (2.092, 7.937)] were significantly associated with ophthalmic self-medication.

Conclusion and recommendations: The prevalence of ophthalmic self-medication was 30.4% and it was significantly associated with inaccessibility of services, lack of awareness of side effects of eye medications, dissatisfaction at available health services, and easy accessibility of ophthalmic medications. Awareness creation and health education was recommended to Gondar city administrative health office reduce the proportion and its potential risks.

Key words: Ophthalmic self-medication, Adult, Ethiopia

1 Introduction:

1.1 Statement of the Problem

Disease is a very common experience in human life. Different people search different treatment options when they feel pain or discomfort. Only 10-30% of symptoms experienced by an individual are brought to the attention of the physician, but the majority of symptoms are remained either tolerated or self-medicated(1)(2).

In the modern world, Self-medication is considered as one major component of self-care (3). Ophthalmic self-medication is defined as the selection and use of medicines by individuals to treat self-recognized or self-diagnosed symptoms(4). It can also be an intermittent or continued use of medication that was formerly prescribed by a physician (5).

Globally, self-medication is a common experience(6) and its proportion among the general population varies from 8%-73.9%(7,8). Several studies revealed that the proportion of ophthalmic self-medication worldwide ranges from 23.3% to 76.3 %(9, 10-16).

Although a wide spectrum of symptoms and pathologies are lessened by ophthalmic self-medication, it has several negative impacts on the community due to inappropriate usage (17). Wastage of resources, serious health hazards, increased resistance of pathogens which is common in developing countries are the major negative effects of ophthalmic self-medication (18-20).

At individual level, it may also have adverse effects on the patients visual outcome due to a delayed diagnosis, inappropriate treatment, masking sever pathologies or causing adverse reactions, intoxication and harmful drug interaction(9). In ocular emergencies, visual prognosis is highly dependent on first-aid measures. The use of self-medication can delay a patient's search for specialized eye care, aggravate his or her condition and ultimately jeopardize the patient's visual prognosis. Overall, such conditions end up with low vision and blindness(17, 21).

Globally, it was reported that ophthalmic self-medication is associated with different socio demographic factors including age (6), female sex(22) amrital status(22-26) level

of education (27), level of income and employment (28) awareness of side effects (29-31), and health insurance (11).

Various studies had been conducted on ophthalmic self-medication in different countries. However, the majority of studies were descriptive hospital based and difficult to generalize to the community.

Furthermore, in Ethiopia, there is limited data about ophthalmic self-medication and factors behind it. Therefore this study is aimed to provide the prevalence of ophthalmic self-medication and associated factors. The result of this study will be important for as a baseline researchers, an input for resource allocators and as a source of information for policy makers.

1.2 Literature review

1.2.1 Proportion of ophthalmic self-medication

Several researches had been conducted to determine the proportion of self-medication in different diseases, medications groups and population categories. The magnitude of self-medication varies from place to place. Majority of researches conducted on self-medication includes ocular problems as a single reason of self-medication.

Globally, a systematic review data showed the proportion of self-medication has various pattern among different countries in the world (USA 13%, Australia and Germany 11% each, Spain, UK and Sweden 9% each, Switzerland, Mexico and Italy 8%) (7,32).

In Europe, a survey of the populations of 19 European countries to compare the proportion of antimicrobial drug self-medication in one year period reported that the proportion rates for antimicrobial self-medication were highest in eastern Europe (in particular, Romania and Lithuania), followed by rates in southern Europe(Malta, Spain, and Italy(33).

In Asia a community based cross sectional study conducted in coastal region of pud hucherry, southern India, found the proportion of self-medication was 71 %(34). Where as In Pakistan a community based cross-sectional study showed the proportion of self-medication among urban and rural residents of Islamabad was 61.2%(35).

There is a wide variation of self-medication practice among some African countries. A hospital based cross-sectional study conducted in Nigeria estimated the proportion of self-medication to be 85 % (36). According to the systematic review of worldwide data, South Africa was included and the proportion of self-medication was determined as 14 %(7, 32). In Khartoum State, Sudan the proportion of self-medication with antibiotics was 73.9%(8).

It is reported that, there is a geographic variation of self-medication practice in Ethiopia. (2). A community based cross-sectional study in southern Ethiopia determined the proportion of self-medication was 39% (37). A school based study done on students of Asella health Science College showed the proportion of students who practiced self-medication was 77.1% (39).

Even though the above literatures include ophthalmic problems as one of the reasons of self-medication, they had a limited specific data on the prevalence of ophthalmic self-medication. The following literatures were found having specific data on ophthalmic self-medication.

A comparative Hospital based research among adults visiting ophthalmology clinic in Latin Americans determined that the proportion of ophthalmic self-medication was 25.6% in Argentina and 25.7% in Colombia(10).

In brazil, a cross-sectional study on the assessment of initial treatments used by patients seen in ophthalmologic emergency room prior to seeking emergency care reported that self-medication was 40.5 %(21).

Two studies conducted in India. A cross-sectional study among adults visiting ophthalmology clinic In Northern India, revealed that self-medication was found to be 41.2% (12). Whereas another research in southern Indian pharmacists, dispensing over the counter ophthalmic drugs was practiced by 89.9% of the pharmacist. Majority of the drugs used were antibiotics (27%), the second most common drugs consumed were steroids (10%), 7.3% of respondents experienced the side effects of the drugs (39).
In West Africa a cross-sectional study in Nigeria showed that the proportion of ophthalmic self-medication was 73.6%.

Another study in west Africa, In a school based study In Ghanaian undergraduate university students, the proportion of ophthalmic self-medication was reported in 25.2% (14). Whereas a community based cross-sectional study that was conducted there in Ghana showed the proportion of ophthalmic self-medication was 23.3% (11).

Only one research found in east Africa. A hospital based cross sectional study among patients visiting ophthalmology clinic in Dare salaam, Tanzania, estimated the prevalence of ophthalmic self-medication was 59.8%(15).

1.2.2 Associated factors of self-medication

Globally a systematic review done to identify factors associated with self-medication practice reported, awareness of medicinal side effects, familial practice, ethnicity, maternal education, previous prescription, rurally, poor school performance were found to be associated with practice of self-medication(2, 40).

Different studies in different regions showed that socio demographic characteristics including increasing age, (30,32,42) sex being female (8) and male(42) lower level of education,(30) occupation, higher level of socio economic status, (35) religion (2, 6, 34-37) ,Residence(25, 42), marital status, employment(42) are associated with self-medication.

In Europe a cross sectional study done in serbia showed independent risk factors for self-medication among medical students were possession of home-pharmacies, lower level of father ’s education, consumption of alcoholic beverages, Time spent in physical activity, female gender, older age, and higher physical health (40). Satisfaction at health services also affects self medication (44).

These factors that are associated with the general self-medication may be associated with ophthalmic self-medication practice. But specifically for ophthalmic self-medication, a research conducted in Ghana reported the status of health insurance(16) sex being female and oral contraceptive use were significantly associated with ophthalmic self-medication practice(14). From these literatures it is clearly seen that ophthalmic self-medication is associated with different socio demographic factors (6, 22-26,27), socioeconomic factors, (35) previous ophthalmic drug information factors (29, 37, 41), and health care system related factors (11).

In different literatures, In addition to these factors the following reasons were described as an influencing factors of ophthalmic self-medication practice. In Latin America easy accessibility to a large number of drugs, (12,10,28), the lack of official control over the marketing of these substances, the inherent weaknesses of health systems, the influence of social environment and cultural standards, few number of eye care professionals were reported to contribute to the magnification of the proportion of ophthalmic self-medication (12).

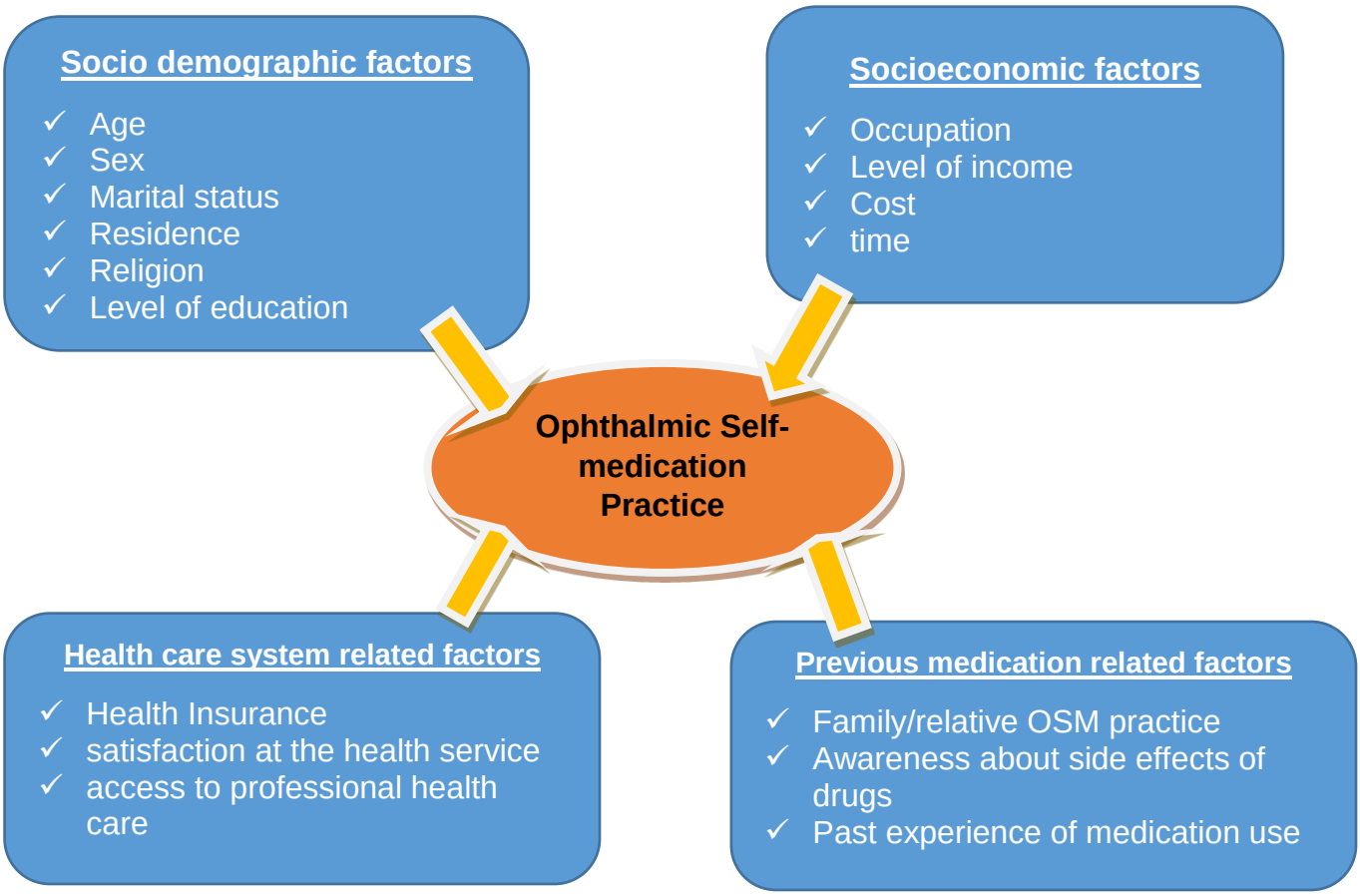
long waiting time at the health institutions, and High Cost of treatment at health institutions,(15,39,43,44) Non availability of doctors/Living far from hospital(37,40,45).

Even though these factors were described as an influencing factors their association with ophthalmic self-medication was not statistically tested.

1.3 Conceptual framework

This conceptual frame work was developed after reviewing different literatures and revising previous models that were used to study general self-medication practice in china and Mexico (19, 48).

Determinants of ophthalmic self-medication.



1.4 Justification

Currently one of the major public health challenge is the emergence of drug resistant microbes due to inappropriate use of medication. Irrational use of ophthalmic medications may result in various outcomes, ranging from mild discomfort to blindness. One of the reasons of inappropriate use of medication was self-medication. So it was essential to know the proportion and associated factors of ophthalmic self-medication practice in the general community to take appropriate measures. Despite this fact there was limited data that expresses the proportion of ophthalmic self-medication and associated factors among adults in the study area. This study will fill this gap by providing information about the proportion of ophthalmic self-medication and associated factors in the past two years among adult residents in Gondar City. The result will also be important for policy makers in order to devise appropriate educational, regulatory, and administrative measures in alleviating existing and emerging public health risks arising from ophthalmic self-medication.

2 Objective

2.1 General objective

- The main objective of this study was to determine the proportion and associated factors of ophthalmic self-medication among adult ophthalmic patients in Gondar city

2.2 Specific objectives

- To determine the proportion of ophthalmic self-medication among adult ophthalmic patients.
- To identify factors associated with ophthalmic self-medication among adult ophthalmic patients.

3 Methods

3.1 Study design

A Community based cross-sectional study design was used.

3.2 Study area and period

The study was conducted in Gondar city, Northwest Ethiopia from April 20 to May 7, 2017.

Gondar city is located in North Gondar zone which is situated 748 km from the capital city, Addis Ababa. The population of about 207,044 according to 2007 census. It has 10 sub-cities and 21 kebeles hosting approximately 53, 725 household. The majority (84.2%) of the inhabitants practice Ethiopian Orthodox Christianity, while 11.8% of the population said they are Muslim and 1.1% are Protestant (47). During the study period in Gondar city, there are eight government health centers, and one university referral hospital. The referral hospital has a tertiary eye care and training center occupied by ophthalmologists, Optometrists, ophthalmic nurses and cataract surgeons. There were also 14 private specialty clinics 2 of them were specialty eye clinics. There were also 1 general hospital, 17 medium clinics, and 8 primary clinics, 23 pharmacies and 34 drug stores distributed over the city. (According to the 2017 first half year report of Gondar city administrative health office)

3.3 Source population and study population

All adult ophthalmic patients living in Gondar city were the study and source population.

3.4 Inclusion and Exclusion criteria

3.4.1 Inclusion criteria

Individuals who have had at least an episode of an ocular disorder within two years prior to the conduct of this study and aged 18 years and older were included in the study.

3.4.2 Exclusion criteria

Participants who cannot give response including hearing and speaking problem, and psychiatric adults who could not give an appropriate response were not included in the study. Adults who lived in Gondar less than 6 months and those who had no house were not included.

3.5 Sample size determination

3.5.1 Sample size for objective one

The minimum sample size was determined using the single population proportion formula $$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2}$$ by assuming 5% margin of error, 95% confidence level and 23.3% proportion of ophthalmic self-medication (11). The sample size was 256 including 10% non-response rate.

3.6 Sample size for objective two

The adequacy of the sample size for objective 2 was checked using open-Epi software taking health insurance as a consistent factor in the previous study done in Ghana (11). Hence, the sample size was computed by assuming 95% confidence level, ratio of those who had health insurance to those who had not health insurance (3.29), proportion of those who had self-medication among health insured (p1=0.159), proportion of those who had self-medication among non-health insured (p2=0.335), and crude odds ratio (2.66). The computer generated sample size was 333 including 10% non-response rate. Thus, the sample size of objective two (n=333) was taken as a final sample size

3.7 Sampling technique and procedures

A non-random quota sampling technique was used to select participants.

3.8 Variables of the study

3.8.1 Dependent variable

Ophthalmic self-medication

3.8.2 Independent variables

Socio demographic factors

Age, Sex, Marital status, level of education, Religion

Socioeconomic factors

Occupation, Level of income, cost,

Previous medication related factors

Previous prescription, Family/relative practice, Awareness of about drugs side effects, Knowledge of similar eye disease in the past, previous eye disease.

Health care System related factors

Health Insurance, waiting time at health institutions, satisfaction at the health service delivered at health institutions, Presence of private pharmacy, Accessibility of large number of drugs, number of professionals, Cost of treatment at health care centers.

3.9 Operational definitions

Ophthalmic Self-Medication practice- it was categorized as **Yes**, if an individual uses one of modern ophthalmic medicines in the past two years without formal prescription from health professionals and as **No,** if it was not practiced with in the past two years or practiced before two years.

Ophthalmic Medicines-pharmaceutically produced drugs including eye drops, eye ointments, tablets, injectable drug preparations that are used for the management of eye problems.

Accessible eye health care service - was categorized as **yes** if the participant reported he/she can get eye health care professional in the nearby health institution and no if the participant responds he/she cannot access the eye care professional in the nearby health institution

Health insured: an individual who has health insurance from government, those who had a free Medicare service and those who had a health insurance in the sector where they work

Adult: A person whose age **≥18** years old. (46)

Permanent resident: Aperson who lived at least for six months in Gondar City. (According to the information obtained Gondar City Administrative office)

Satisfaction- it was categorized as **Satisfied**, if an individual responds He or she was satisfied with health services. **Dissatisfied** if the participant said I am dis satisfied with the health services at health institutions and **Neutral** if he she has no idea or do not go to health institutions.

3.10 Data collection procedures and personnel

English version of structured questionnaire that consisted of practice of ophthalmic self-medication and socio demographic, health care related, and previous eye medication related factors was developed. And it was translated in to Amharic (local language) and retranslated back to English version to maintain its consistency. The translation was done by local language and English language expert. Data was collected using Amharic version of the questionnaire through face to face interview at weekends and at evening after 11:30-12:30 (local time) in the working days. The interview was done by 15 trained personnel using an interview guide questionnaire.

3.11 Data quality Assurance

The questionnaire was pretested on 5% of the sample size outside the study area. After doing the pre-test, necessary modifications were made accordingly before actual data collection. Before data collection, training was given to the data collectors on the way how to interview for 2 hours. During data collection, there was a daily supervisions, discussions. During the first two days of data collection period 5% of the collected data was evaluated for its completeness and consistency.

3.12 Data processing and analysis

After the data was collected, cleaning and coding was done. The data was entered into EPI INFO 3.5 and exported and analyzed by using SPSS version 20. Proportions and summary statistics such as mean, standard deviation were computed. Bivariable and multivariable logistic regression were used to identify associated factors for ophthalmic self-medication practice. Those variables with $P \leq 0.2$ at Bivariable analysis were entered to multivariable regression model with a backward method. The fitness of the model was checked with Hosmer Lemshow model fitness test. Those variables with $p<0.05$ with multivariable analysis were considered as statistically significant. The final data was presented using tables.

3.13 Ethical consideration

Ethical clearance was obtained from University of Gondar College of Medicine and Health Sciences School of Medicine ethical review committee. After informing about the objective of the study a verbal consent was taken from each participant. Their full right to withdraw or refuse to participate in the study was absolutely respected. Confidentiality of the information obtained was assured through anonymous. The collected data is securely locked.

4 RESULTS

4.1 Socio- demographic characteristics of the study participants

Three hundred twenty two (322) participants were involved giving a response rate of 96.6%. Of those, 51.6% were females. The median age of the participants was 40.00 years. (Table 1)

Table1. Socio-demographic characteristics of study participants among adult ophthalmic patients in Gondar city, Northwest Ethiopia, 2017 (n=322)

Variables	Frequency	Percent
SEX		
Female	166	51.60
Male	156	48.40
Age group		
18-30	128	39.80
31-50	100	31.10
51-70	79	24.50
>70	15	4.70
Marital status		
Single	105	32.60
Married	162	50.30
Divorced	24	7.50
Widowed	31	9.60
Educational level		
No schooling	68	21.10
Primary School	64	19.90
Secondary School	70	
College/University	120	37.30
Religion		
Orthodox	277	86.00
Muslim	32	9.90
Protestant	8	2.50
Others*	5	1.60

Occupation		
Non healthcare provider	269	83.50
Healthcare provider	53	16.50
Level of income		
>1000	189	58.7
501-1000	57	17.70
0-500	76	23.60

1. *- others includes catholic, Jewish and local believes

4.2 Medication and health care system related responses of participants

Sixty (60) percent of study participants were not aware of side effects of ophthalmic drugs. In addition 13.0% of the participants had a previously prescribed eye medication prescription at their hand.

Table 2: Medication and health care system related responses of participants among adult ophthalmic patients in Gondar city, Northwest Ethiopia, 2017 (n=322)

Variables	Frequency	Percent (%)
Previous eye medication		
No	103	32.0
Yes	219	68.0
Previous prescription		
No	280	87.0
Yes	42	13.0
Awareness of side effects of medicines		
No	195	60.6
Yes	127	39.4
Positive family history		
No	124	38.5
Yes	198	61.5
Health insurance status		
No	291	90.4
Yes	31	9.6
Waiting time at health institution		
≤ 50 minutes	91	28.3
> 50 minutes	77	23.9
I don't know	154	47.8
Satisfaction		
Dis satisfied	94	29.2
Neutral	97	30.1
Satisfied	131	40.7
Accessibility of drugs		
No	119	37.0
Yes	203	63.0
Presence of nearby pharmacies		
No	54	16.8
Yes	268	83.2
Accessibility of eye care services		
No	134	41.6
Yes	188	58.4
Greater Cost at health institution		
No	116	36.0
I don’t know	112	34.8
Yes	94	29.2

4.3 Proportion of ophthalmic self-medication

The prevalence of ophthalmic self-medication in this study was 30.4% (95% CI: 30.35, 30.45). Among them 51% had used ophthalmic self-medication more than three times in the past two years. Advice from family members or relatives/ friend was the main reason of ophthalmic self-medication in the past two years (25.8%). Most of the respondents source of information about which drug to buy was the recommendation of pharmacists (37.8%) (Table 3).

Table 3. Participants' ophthalmic self-medication related information among adult ophthalmic patients in Gondar city, Northwest Ethiopia, 2017.

VARIABLES	FREQUENCY	PERCENT	95%CI
Ophthalmic self-medication(N=679)			
Yes	98	30.40	[30.35%,30.45]
No	224	69.60	[69.55%,69.65%]
Frequency of self -medication use (n=98)			
1-2 times	48	49.00	
3-5 times	33	33.70	
>5times	17	17.30	
Reasons of self-medication (n=98)			
Minor problem	12	12.2	
Advice	27	27.6	
Longer waiting time	17	17.3	
Higher Cost	10	10.2	
Dissatisfaction with existed service	9	9.2	
I know what to do	12	12.2	
other reasons	11	11.2	
Source of information about drug used (n=98)			
Advice from family/friends	15	15.3	
Pharmacist	40	40.8	
Previous drug used	9	9.2	
Treated with the same drug	17	17.3	
Previous prescription	4	4.1	
Drug for my eye	13	13.3	

4.4 Factors associated with ophthalmic self-medication

In Bivariable analysis having previous prescription, lack of awareness of side effects of ophthalmic medicines, having a positive family history of eye disease, dissatisfaction at health services delivered at health institutions, easy accessibility of ophthalmic drugs over the market, having a nearby pharmacy, Lack of enough number of professionals, Age greater than 31-50 years old, health institutions higher cost, waiting time >50 minutes, non-health care professional and high school educational level were significantly associated with ophthalmic self-medication.

In the multivariable binary logistic analysis, those participants who were dissatisfied with the health services were 3.90 times more likely to practice ophthalmic self-medication than those who were satisfied [AOR 3.90 (95% CI 1.922, 7.916)]. Participants who were not aware of the side effects of ophthalmic drugs were 3.8 times more likely to practice ophthalmic self-medication [AOR 3.742 (95% CI 1.944, 7.205)]. (Table 4)

Table 4: Factors associated with ophthalmic self-medication among adult ophthalmic patients living in Gondar city, Northwest Ethiopia, 2017. (n=322)

Variables	**Ophthalmic Self-medication**		**COR (95%CI)**	**AOR (95%CI)**
	Yes	No		
Age				
18-30	31	97	1.406 (0.783 2.525)	
31-50	31	69	2.130 (1.164 3.899)	
51-70	32	47	1.138 (0.338 3.830)	
>70	5	11	1	
Educational Status				
No schooling	30	38	2.477(1.312, 4.677)	1.264(0.510 3.135)
Elementary	11	42	0.651 (0.301 1.410)	0.426 (0.163 1.114)
High school	28	53	2.092 (1.109 3.948)	3.695(1.685, 8.104)**
Higher education	29	91	1	1
Occupation				
Non health professional	77	192	1	1

Health care professional	21	32	1.636 (0.889,3.014)	0.355 (0.162, 0.776)**
Previous ophthalmic prescription				
No	90	190	1	
Yes	8	34	0.497 (0.221,1.117)	
Awareness of side effects				
No	77	118	3.294(1.902, 5.704)	3.742 (1.944 7.205)***
Yes	21	106	1	1
Positive family history				
No	44	80	1	
Yes	54	144	0.682 (0.421,1.105)	
Time spent at health institution				
≤ 50’	22	69	1	
I don't know	8	59	0.957 (0.469, 1.953)	
>50’	58	96	1.895 (1.061,3.385)	
Satisfaction				
Dissatisfied	45	49	3.092 (1.741, 5.491)	3.901 (1.922 7.916)***
Neutral	23	74	1.046 (0.563,0.946)	1.199 (0.566 2.538)
Satisfied	30	101	1	1
Nearby pharmacies				
No	16	38	1	
Yes	82	186	1.047 (0.552 1.984)	
Accessibility of ophthalmic drugs				
No	23	96	1	1
Yes	75	128	2.446 (1.430 4.184)	4.075 (2.092,7.937)***
Accessibility eye care services				

No	60	74	3.201 (1.956,5.238)	4.503 (2.458,8.250)***
Yes	38	150	1	1
Higher Cost at health institutions				
No	40	76	0.828 (0.475,1.444)	
I don't know	34	78	0.651 (0.357,1.188)	
Yes	24	70	1	

*- p value <0.05, ** p<0.01, ***p<0.001

5 Discussion

In this study, the prevalence of ophthalmic self-medication was 30.40 [30.35%, 30.45]. This was lower than the studies done in Tanzania (59.8%) (15), Nigeria (73.6%) (16), and India 41.2% (18).These studies were hospital based. Thus, their participants already had the disease, so the participants might tried self-medication before seeking of professional assisted health care. This may tend to give higher proportion. In addition, this result was higher as compared to a community based study reported in Ghana (23.3%) (11), which measured life time magnitude of ophthalmic self-medication. However, the present study assessed ophthalmic self-medication in past two years only. The discrepancy might be due to higher recall bias in the previous study in Ghana.

High school educational status was 3.66 times more likely to practice ophthalmic self-medication when compared to university or college level participants. This might be due to the risk prone attitude associated with little knowledge. Lack of awareness of side effects of drugs may also be another reason.

According to this study participants who were not aware of side effects of ophthalmic medicines were about 3.74 times more likely to practice ophthalmic self-medication than those who were aware of side effects of ophthalmic medications. It was in line with a study conducted in Saudi Arabia [AOR 4.39 95%CI (2.11, 9.14)] (42). This could be due to poor health education about medication side effects in the two communities. In this study majority (79.4%) of individuals with self-medication were not aware of side effects of ophthalmic medications. In Argentina (9) a parallel result was reported as 97% of the participants were not aware of side effects of ophthalmic medications. This supports the finding of this study. These parallel results implies there is poor health education and awareness creation about side effects of ophthalmic drugs.

Inaccessibility of eye health care services was also significantly associated with ophthalmic self-medication practice. Those participants who couldn't access eye health services in the nearby health institution were about 4.50 times more likely to practice ophthalmic self-medication than those who could access eye care services. This result was in agreement with a research conducted in Mexico (19) in which luck of professional assisted health care was reported as related to increased rate of self-medication ($P<0.05$). This agreement could be, due to the inherent seek of human to

took their own measures to get a relief of complain when they couldn't access health services. One of these major subjective measures could be self-medication.

Easily accessibility of ophthalmic medications was significantly associated with self-medication practice. Those who can easily access eye medications were 4.07 times more likely to practice ophthalmic self-medication when compared to those who couldn't easily access it. These individuals may think as they will get a similar medication with those drugs obtained from health institutions. A Research conducted in Assendabo (30) reported easy accessibility of drugs as one reason of self-medication.

In this study, being healthcare provider reduces ophthalmic self-medication by 64.5% when compared to other non-health care occupations. This might be explained because health care professionals may have knowledge of their disease, familiarity of treatment options and frequent exposure to drugs side effects. A study report in Malaysia (23) ideally contradicts this finding in that 77.6% of health professionals were practicing self-medication.

This study showed participants who were dissatisfied were 3.90 times more likely to practice ophthalmic self-medication than those who were satisfied with the available health care services. Dissatisfaction might be one discouraging factor for eye health care seek at health institutions. This in turn might lead patients to seek another eye health care options including self-medication. Another research also mention it as one influencing factor (44).

This study showed ophthalmic self-medication is a public health challenge. Mainly ophthalmic self-medication has a significant association with lack of awareness of side effects and easy accessibility of ophthalmic drugs and dissatisfaction at available health services. This implies there is a need for health education about ophthalmic drugs and ophthalmic self-medication in general.

Limitation: There might be recall bias. It was difficult to differentiate weather some variables preceded the ophthalmic self-medication practice or not.

6 Conclusion

The proportion of ophthalmic self-medication among adult ophthalmic patients in the past two years was 30.4%.

Being a health care professional, inaccessibility of eye health care services, lack of awareness about side effects, dissatisfaction at available health services, and easy accessibility of ophthalmic medications, and long waiting time at health institutions and level of education were significantly associated with ophthalmic self-medication practice in the past two years among adults living in Gondar.

7 Recommendations

- It is better if Gondar city administrative health office creates awareness of side effects of ophthalmic medications to the community of Gondar city.
- It is recommended to university of Gondar tertiary eye care and training center and health institutions in Gondar city to shorten the waiting time of patients.
- It is better if heath care professionals teach patients in order not to reuse medication prescriptions without consulting professionals.

8 References

1. World Health Organization. Global atlas of traditional, complementary and alternative medicine: World Health Organization; 2005.
2. Ayalew MB. Self-medication practice in Ethiopia: a systematic review. Patient preference and adherence. 2017;11:401.
3. World Health Organization. The role of the pharmacist in self-care and self-medication. Report of the 4th WHO Consultive Group on the role of the pharmacist, Geneva: World Health Organization. 1998.
4. Ruiz ME. Risks of self-medication practices. Current drug safety. 2010;5(4):315-23.
5. World Health Organization. Drug information. 2000.14. available at apps.who.int/medicinedocs/documents/h5806e/h5806e.pdf (last accessed on jun 10,2017)
6. Saba H, Shivananda K, Jayan M, Hussain CA. Prevalence of self-medication practices and its associated factors in rural Bengaluru, Karnataka, India. International Journal Of Community Medicine And Public Health. 2017;3(6):1481-6.
7. Antimicrobial resistance the current challenge: available at Http://abimip.org.br /uploads/material_de_apoio/ 1296056417_792.pdf/(last accessed on 2017 Jun 8)
8. Awad A, Eltayeb I, Thalib L, Matowe L. Self-medication with antibiotics and antimalarials in the community of Khartoum State, Sudan. 2017.
9. Gabriel E. Marquez G. Victor E. Torres S. Victoria M. et al. Self-medication in Ophthalmology: A Questionnaire-based Study in an Argentinean Population, Argentina, Ophthalmic Epidemiology, 19(4), 236–241, 2012.
10. Marquez GE, Torres VE, Sanchez VM, Gramajo AL, Zelaya N, Peña FY, et al. Eye drop Self-medication: Comparative questionnaire-based study of two latin American Cities, clinical and experimental ophthalmology. 2014 ; 5(2).
11. Kyei S, Ocansey S, Abu EK, Gyedu BN. Appraisal of the practice of ocular self-medication in Cape Coast Metropolis, Ghana. Optometry Reports. 2014;4(1).

12. Kadri R, Hegde S, Kudva AA, Achar A. Over the counter ophthalmic drug misuse, are we aware? Online Journal of Health and Allied Sciences. 2010;9(2).
13. Tayanithi P, Aramwit P. Self-medicated over the counter ophthalmic solutions in central Bangkok. journal-medical association of thailand. 2005;88:s330.
14. Asiedu K, Kyei S, Agyeman F, Gyamfi KM. Self medication with over-the-counter topical ophthalmic medications: a study of undergraduates in Ghana. Indo Global Journal of Pharmaceutical Sciences. 2016;6:34-7.
15. Kagashe GA, Msela B. Self-medication among patients seen at Ophthalmology Clinics at four hospitals in Dar Es Salaam Tanzania. IOSR Journal of Pharmacy. 2012;2(5):21-5.
16. Ajayi IA, Omotoye OJ, Ajite KO, Fadamiro CO, Ajayi EA. Self Medication Practices among Patients seen in A Suburban Tertiary Eye Care Centre in Nigeria. Asian Journal of Medical Sciences. 2013;5(2):85-90.
17. Rajani K, Sudhir H, Ajay A, Asha A, and Sunil P. Self-medication with over the counter ophthalmic preparations: is it safe? Int J Biol Med Res. 2011;2(2):528-30.
18. Kayalvizhi S, Senapathi R. Evaluation of the perception, attitude and practice of self medication among business students in 3 select cities, south India. IJEIMS. 2010;1(3):40-4.
19. Pagan JA, Ross S, Yau J, Polsky D. Self-medication and health insurance coverage in Mexico. Health policy. 2006;75(2):170-7.
20. World Health Organization. Report of the WHO Expert Committee on national drug policies. Contribution to updating the WHO quidelines for developing national drug policies Geneva: WHO. 1995.
21. Carvalho RS, Kara-José N, Temporini ER, Kara-Junior N, Noma-Campos R. Self-medication: initial treatments used by patients seen in an ophthalmologic emergency room. Clinics. 2009;64(8):735-41.
22. Marak A, Borah M, Bhattacharyya H, Talukdar K. A cross-sectional study on self-medication practices among the rural population of Meghalaya. International Journal of Medical Science and Public Health. 2016;5(6):1134-8.
23. Ali AN, Kai JTTK, Keat CC, Dhanaraj S. Self-medication practices among health care professionals in a Private University, Malaysia. International Current Pharmaceutical Journal. 2012;1(10):302-10.

24. Fadare JO, Tamuno I. Antibiotic self-medication among university medical undergraduates in Northern Nigeria. Journal of Public Health and Epidemiology. 2011;3(5):217-20.
25. Varadarajan V, Paul CMP, Swapna S, Preethi S, Kumar K, PU DD. A cross sectional study on the prevalence of self-medication in a Chennai based population, Tamil Nadu, India. International Journal Of Community Medicine And Public Health. 2017;4(2):418-23.
26. Afolabi A. Factors influencing the pattern of self-medication in an adult Nigerian population. Annals of African medicine. 2008;7(3):120-7
27. Eticha T, Mesfin K. Self-medication practices in Mekelle, Ethiopia. PloS one. 2014;9(5):e97464.
28. Figueiras A, Caamano F, Gestal –Otero JJ. Socio demographic factors related to self-medication in Spain. Eur J Epidemiol 2000; 16(1): 19-26
29. Shehnaz SI, Agarwal AK, Khan N. A systematic review of self-medication practices among adolescents. Journal of Adolescent Health. 2014;55(4):467-83.
30. Suleman S, Ketsela A, Mekonnen Z. Assessment of self-medication practices in Assendabo town, Jimma zone, southwestern Ethiopia. Research in Social and Administrative Pharmacy. 2009;5(1):76-81.
31. Grigoryan L, Haaijer-Ruskamp FM, Burgerhof J, Mechtler R, Deschepper R, Tambic-Andrasevic A, et al. Self-medication with antimicrobial drugs in Europe. Emerging infectious diseases. 2006;12(3):452.
32. Balamurugan E, Ganesh K. Prevalence and pattern of self medication use in coastal regions of South India. Br J Med Pract. 2011;4(3):a428.
33. Aqeel T, Prevalence of Self-Medication among Urban and Rural Population of Islamabad, Pakistan. Tropical Journal of Pharmaceutical Research April 2014; 13 (4): 627-633.
34. Omolase C.O, Adeleke O.E, Afolabi O.T. Self medicati on amongst general out patients in anigerian community hospital. Annals of Ibadan Postgraduate Medicine. Vol.5 No2 December, 2007
35. Bekele, S.A., Argaw, M.D. Yalew, A.W. Magnitude and Factors Associated with Self-Medication Practices among University Students: The Case of Arsi

University, College of Health Science, Asella, Ethiopia: Cross-Sectional Survey Based Study. Open Access Library Journal, 3: e2738, 2016

36. Gupta R, Malhotra P. Self-medication in ophthalmology-a northern Indian tertiary hospital experience. International Journal of Basic & Clinical Pharmacology. 2016;5(6):2556-60.
37. Stoelben S, Krappweis J, Rossler G, et al. Adolescents' drug use and drug knowledge. Eur J Pediatr 2000;159:608e14.
38. Morales-Suárez-Varela M, Llopis-González A, Caamaño-Isorna F, et al. Adolescents in Spain: Use of medicines and adolescent lifestyles. Pharm World Sci 2009;31:656e63.
39. Holstein BE, Holme Hansen E, Due P, et al. Self-reported medicine use among 11- to 15-year old girls and boys in Denmark 1988-1998. Scand J Public Health 2003;31:334e41
40. Tobi H, Meijer WM, Tuinstra J, et al. Socio-economic differences in prescription and OTC drug use in Dutch adolescents. Pharm World Sci 2003; 25:203e6
41. Geissler PW, Nokes K, Prince RJ, et al. Children and medicines: Selftreatment of common illnesses among Luo schoolchildren in western Kenya. Soc Sci Med 2000;50:1771e83
42. Abahussain NA, Taha AZ. Knowledge and attitudes of female school students on medications in eastern Saudi Arabia. Saudi Med J 2007;28: 1723e7.
43. Mojali S, Al-Ghanim S, Alduais AM, Al-Shabrani BF. Self-medication practice among Yemeni patients in Ibb city: a survey study exploring patients' perceptives. Journal of Hospital Administration. 2015;4(4):p32
44. Hebeb GE, Gearhart JG. Common patient symptoms: Patterns of self-treatment and prevention. J Miss State Med Assoc. 1993; 34: 179-181
45. Student lancet: Antimicrobial resistance the current challenge. Available from: http://www.thelancetstudent. com. (Last accessed on 2017 Jun 8).

46. UNICEF. State of the world's children 2012: available at http://www.unicef.org/sow-2012-2012-Main Report-En_21 December 2011. (Last accessed on 12 Jun 2017)
47. Ababa A, commission p Summary and statistical report of population and housing census. population size by age and sex, 2008
48. Health Soc Care Community. 2011 Sep; 19(5): 10.1111/j.1365 2524.2011.01009.x available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3873345/figure/F1/ (Last accessed on 02 may 2017).

9 Annexes

Annex 1. Information sheet

Title of the research project - Prevalence and associated factors of ophthalmic self-medication in the past two years among adult ophthalmic patients in Gondar city, Northwest Ethiopia, 2017.

Name of principal investigator –Mebratu Mulusew

Name of organization - University of Gondar, College of Medicine and Health Sciences, Department of Optometry.

Name of sponsor - University of Gondar

Introduction

Prevalence and associated factors of ophthalmic self-medication in the past two years among adult ophthalmic patients in Gondar city, Northwest Ethiopia, 2017. The research group includes the principal investigator, fifteen trained data collectors, one supervisor, and two advisors from University of Gondar.

Purpose of the research project

The main purpose this study is to assess Prevalence and associated factors of ophthalmic self-medication in the past two years among adult ophthalmic patients in Gondar town.

Procedures

The study involves selected 708 samples of all adult residents in Gondar, from April 27 to May 7, 2017. The data collectors will tell the participants "You are one of the study participants and we kindly invite you to take part in our project. If you are willing to participate, we are so happy and we need you to clearly understand the aim of this study and show your agreement. Finally you are kindly requested to give your genuine response in the interview".

Benefits, Risks and/or Discomfort

By participating in this research you may feel some discomfort in wasting a maximum of 15 minutes of your time. However, your participation is definitely important to assess the

proportion of ophthalmic self-medication and associated factors in the past two years among adult ophthalmic patients in Gondar, which is very important to devise different educational, policy and administrative measures. It will also provide a baseline information for future researchers in the area.

There is no risk by participating in this research rather you will improve your awareness of ophthalmic self-medication.

Incentives/Payments for Participating

You will not be provided any incentives or payments to take part in this research project.

Confidentiality

We will not write your name and the information collected from you will be kept confidential and stored in a file, by assigning a code number to it. Hence, no report of the study ever identifies you.

Right to Refusal or Withdraw

You have the full right to refuse from participating in this research and to withdraw at any time you wish.

Person to contact

This research project was reviewed and approved by the ethical committee of the University of Gondar. If you have any question you can contact any of the following individuals and you may ask your questions at any time you want.

Name: Mebratu Mulusew Name: Natnael Lakachew Name: Ayanaw Tsega

Tele: 0924251565 Tele: 0910088903 Tele: 0918261994

Annex 2. English version of informed consent

Name: _____ ID: _____

Consent form for interview on proportion and associated factors of ophthalmic self-medication

Dear sir/madam

You are participating in this study undertaken to assess proportion and associated factors of ophthalmic self-medication in the past two years among adult ophthalmic patients in Gondar city. Ophthalmic self-medication has a great benefit when used appropriately. But when used irrationally it has so many side effects ranging from mild discomfort to blindness. So knowing the proportion and its associated factors is important to take appropriate measures and to benefit the public at large. The data will be collected for research purposes by University of Gondar, college of Medicine and Health Sciences Department of Optometry. The result might be very important for planning different educational, policy and administrative programs.

With your permission, we would like to conduct interview with you.

You do not have to agree to do these things if you don't want to do. You can withdraw your consent at any time. All information that we collect will be confidential and no identifiable information will be released.

I acknowledge that I have understood this consent and the reasons for the study have been explained to me by my own language. I give my consent to participating in the study.

Participant ---------- sign and date ----------

Researchers/witness ---------- sign and date ----------

Annex 3: Amharic version of informed consent

የፈቃድ መጠየቂያ ቅፅ

ቀበሌ ---------- መለያ ቁጥር፤ ----------

የተከበሩ አቶ/ወይዘሮ/ወይዘሪት

እርሰዎ ባለፉት ሁለት ዓመታት ውስጥ በጎንደር ከተማ በሚኖሩ አዋቂ (ዕድሜያቸው ከ18 ዓመት በላይ በሆኑ) ሰዎች ከሀኪም ትዕዛዝ ዉጪ እና ያለ መድኃኒት ማዘዣ ወረቀት ተገዝተው ለዓይን ህክምና በሚያገለግሉ መድኃኒቶች አጠቃቀም እና ተያያዥ ምክንያቶች ላይ በሚደረገዉ ጥናት እንዲሳተፉ ተመርጠዋል። ያለ ሀኪም ትዕዛዝ ዓይንን ለማከም የሚያገለግሉ መድኃኒቶችን በጥንቃቄ መጠቀም ብዙ ጥቅም አለው። ነገር ግን ከሀኪም ተትዕዛዝ ውጪ ያለ መድኃኒት ማዘዣ ወረቀት የሚገዙ መደኃኒቶችን በዘፈቀደ መጠቀም ዓይነ ስውርነትን ጨምሮ ከቀላል እስከ ከባድ የዓይን ችግር ያመጣል። ስለሆነም ያለ መድኃኒት ማዘዣ ወረቀት ለዓይን ህክምና የሚያገለግሉ መድኃኒተቶችን አጠቃቀም እና ተያያዥ ምክንያቶችን ለይቶ ማወቁ በከተማ ውስጥ ምን ያክል ሰዎች ይጠቀማሉ የሚለውን እና ተያያዥ ምክንያቶችን በመለየት በጎንደር ዩነቨርስቲ ህክምናና ጤና ሳይንስ ኮሌጅ የዓይን ህክምና ትምህርት ክፍል በማቅረብ በአጠቃላይ ህዝቡን የተሻለ መጥቀም እንዲቻል ለማድረግ ነው። በጥናቱ የሚገኘው የእርስዎ መረጃ ምስጢሩ የተጠበቀና ከጥናቱ ውጪ ለምንም ጉዳይ የማንጠቀምበት መሆኑን ለመግለፅ እንወዳለን።

ፍቃድዎ ከሆነ ቃለመጠይቅ ብናደርግ ደስ ይለናል።

በጥናቱ ላይ መሳተፍም ሆነ አለመሳተፍም ይችላሉ። መሃል ላይ የማይመች ነገር ካለ ማቋረጥ ይችላሉ። ነግር ግን የእርሰ መሳተፍ ለጥናቱ ወሰኝ በመሆኑና መረጃዎ ምስጢሩ የተጠበቀ መሆኑን እናረጋግጥለዎታለን ።

የዚህ ጥናት ዓለማ፣ ጥቅሙ ና ጉዳቱ በግልፅ በሚስማማኝ ና በሚገባኝ ቋንቋ ስለ ተነገርኝ እኔ በጥናቱ ለመሳትፍ ተስማምቻለሁ።

የተሳታፊ ስም ---------- ፊርማ ---------- ቀን ----------

የጥናቱ ባለቤቶች ---------- ፊርማ ---------- ቀን ----------

Annex 3. English version of data extraction format

Pre tested structured questionnaire to assess the proportion and associated factors of ophthalmic self-medication in the past two years among adult ophthalmic patients in Gondar city, Northwest Ethiopia, 2017

Code _____

Kebele_____

Introduction

Good morning/afternoon, my name is ---------- I am working for University of Gondar. I am a member of a research group working in GUH. The research is about proportion and associated factors of ophthalmic self-medication in the past two years among adult residents in Gondar city. Your truth full answers for all of our questions are important to know the proportion of ophthalmic self-medication and its associated factors. Your answers will be confidential and secret. If you decide that, you do not want to participate in the study now or at any time in the future, you can refuse and discontinue your participation. But we appreciate you if you try to participate for 15 minutes to complete the questionnaire. Thank you. Next, I will read a consent, which assures your interest to participate.

Do I have your permission to continue?

If yes thank you and continue ----------

If no, thank you and go to next sample ----------

Data collector

Name ---------- signature ---------- date ----------

Checked by supervisor

Name ---------- signature---------- date----------

Annex 4. English version of structured Questionnaire

Section 1. Socio demographic data of the participant			
S/N	Question	Response	
1	Age	_____ year	
2	Sex	1. Male 2. Female	
3	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
4	Educational status	1. No schooling 2. Elementary education 3. High education 4. Higher education	
5	Occupation	1. Merchant 2. Farmer 3. Religious leader 4. Mechanic 5. Health professional 6. Teacher 7. Other civil servant 8. Housewife 9. Student 10. Pensioner 11. No 12. Other ……..	
6	Monthly income in Ethiopian Birr.	_____Birr	
7	Religion	1. Orthodox 2. Muslim 3. Protestant	

		4. Others (catholic, Jewish…)	
Section 2. Health System Factors			
1	Do you have health insurance	1. Insured 2. Not insured	
3	In health institution how long does it take to get the medication prescription?	1. <50minutes 2. > or equal to 50 minutes	
4	Are you satisfied with the services given at the health institutions	1. Satisfied 2. Neutral 3. Dissatisfied	
Section 3: MEDICATION INFORMATION FACTORS			
1	Do you have previous eye disease?	1. Yes 2. No	
2	Do you know that, ophthalmic medications have side effects	1. Yes 2. No	
3	Is there any family/relative who had an eye problem and treated?	1. Yes 2. No	
4	Have you experienced any eye problem which was treated in the past	1. Yes 2. No	
Section4: Availability factors			
1	Are there private pharmacies in the nearby.	1. Yes 2. No	
2	Can you get ophthalmic medication easily from the pharmacies?	1. Yes 2. No	
3	Are there ophthalmic health professionals in the nearby health institution	1. Yes 2. No	
4	Does the sum cost of all	1. Yes	

	procedures to get ophthalmic medications in the health institutions cost higher than getting medications from private pharmacies	2. No	
Practice of ophthalmic self-medication			
1	Have you used eye drops, Ointments, or tablets for eye problem in the past two years? (If No go to question number 8.	1. Yes 2. No	
2	If yes for question 1 how many times you used ophthalmic medications	1. 1-2 times 2. 3-5 times 3. > 5times	
3	Do you remember the name of the medication/s used	_____ _____	
4	If yes for question 1 above, did you get the ophthalmic medication from the hospital under the physicians prescription	1. Yes 2. No	

5	If your answer for Q.no 4 above is “NO” what was /were your reason/s?	1. Complaints are minor 2. Advice from family members/friends 3. Long waiting time at the hospital 4. High Cost of treatment at the hospital 5. Hospitals are not (I am not satisfied with the professionals at Hospital) good. 6. Because there are better pharmacies at nearby 7. No reason/Busy 8. Non availability of Doctors/Living far from hospital 9. I Know what to do 10. Other reason…….. More than one answer is possible.	
6	Who told you the specific ophthalmic medication you bought?	1. Advice from family members/friends 2. Pharmacists recommended me. 3. I had similar illness in the past and treated of it. 4. I saw another person treated with the same drug 5. Previous prescription from hospitals. 6. I know what to do. 7. Others More than one answer is possible.	
7	What was the effect of the drug you used?	1. Improved the symptoms 2. There was no improvement 3. Worsens the problem.	

Note: When you complete the questionnaire please inform the participant that ophthalmic medications have several adverse effects when used without consulting health professional.

Annex 5: Amharic version of data extraction format

የጎንደር ዩኒቨርሲቲ ህክምና ና ጤና ሳይንስ ኮሌጅ የዓይን ህክምና ትምህርት ክፍል

መለያ ቁጥር ----------

የቀበሌ ስም----------

<u>የመጠይቅ ቅፅ</u>

ጤና ይስጥልኝ ----------እባላለሁ። የጎንደር ዩነቨርስቲ ሠተራተኛ ና የዩነቨርሲቲው የጥናት ቡድን አባል ነኝ። በጎንደር ከተማ ውስጥ በሚኖሩ በአዋቂ (ዕድሜያቸው 18 ዓመት እና ከዚያ በላይ በሆኑ) ሰዎች ዘንድ ባለፉት ሁለት ዓመታት ውስጥ ያለ ሀኪም ትዕዛዝ እና ያለ መድኃኒት ማዘዣ ወረቀት በሚገዙ እና አግልግሎት ላይ በሚውሉ የዓይን መድኃኒቶች አጠቃቀም እና ተያያዥ ምክንያቶችን ለመለየት በጎንደር ከተማ ውስጥ ቃለ መጠይቅ በማድረግ እያጠናን እንገኛለን። ይህ ጥናት እርስዎ በሚሰጡን መረጃ ላይ የተመሰረተ ስለሆነ ፈቃድዎ ከሆነ መረጃውን በመስጠት ትብብር እንዲያደርጉልን በትህትና እንጠይቃለን። በጥናቱ ላይ መሳተፍ የማይፈልጉ ከሆነ አሁንም ሆነ በጥናቱ ሂደት ወስጥ አለመስማማት ይችላሉ። ሆኖም ግን ጥናቱ ከትንሽ ጊዜ (15 ደቂቃ) መፍጀት ውጪ ምንም አይነት ጉዳት የማያመጣ ስለሆነ እንዲሳተፉ እናበረታተለን። መረጃዎ ምስጢራዊነቱ የተጠበቀ፣ ለጥናቱ ብቻ የሚውል ና ለሌላ ጉዳይ የማንጠቀምበት መሆኑን ልናረጋግጥልዎ እንወዳለን። ቃለ መጠይቁ 15 ደቂቃ የሚፈጅ ስለሆነ ፍቃደኝነትዎን በፊርማ እንዲያረጋግጡልን ና ዉል እንዲወስዱልን በትህትና እየጠየቅን ወደ ቃለ መጠይቁ እንሄዳለን።

ለመሳተፍ ፈቃደኛ ከሆኑ ወደ ሚቀጥለው ገፅ ይለፉ.

ማንኛውም ሊያነሱ የሚፈልጉት ጥያቄ ካለዎት ተመራማሪውን በሚቀጥለው አድራሻ ማነጋገር ይችላሉ።

ስም ፡ መብራቱ ሙሉሰው ስ. ቁ፡ 0924251565

መረጃ ውን የሰበሰበው

ስም ---------- ፊርማ ---------- ቀን ----------

መረጃውን ያረጋገጠው

ስም---------- ፊርማ ---------- ቀን ----------

Annex 6. Amharic Version of structured questionnaire

ክፍል1፡ ማህበራዊ መረጃዎች			
	ጥያቄ	አማራጭ መልሶች	ምርመራ
1	ዕድሜበዓመት	……	
2	ፆታ	1. ወንድ 2. ሴት	
3	የጋብቻሁኔታ	1. ያላገባ 2. ያገባ 3. የተለያየ (የፈታ/ች) 4. የሞተበት (ባት)	
4	የትምህርትሁኔታ	1. ትምህርቤት ያልገባ 2. 1ኛደረጃ 3. 2ኛደረጃ 4. መሠናዶ 5. ኮሌጅ ወይም ዩኒቨርሲቲ	
5	ሥራ	1. ንግድ 2. ግብርና 3. የሃይማኖት መሪ 4. ሜካኒክ /ኢንጅነር/ 5. የጤና ባለሙያ 6. መምህር 7. ሌላ የመንግሥት ሥራ 8. የቤት እመቤት 9. ተማሪ 10. ጡረተኛ	

		11. ሥራፈላጊ 12. ሌላ……..	
6	ወርሃዊገቢ (በኢተትዮጵያብር)	_____ብር	
7	ሃይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ሌላ	
ክፍል2፡ የጤና መዋቅር ሥርዓት ጋር የተያያዙ ጥያቄዎች			
1	የጤና ዋስትና አገልግሎት ተጠቃሚ ነዎት	1. አዎ 2. አይደለሁም	
2	በጤና ተቋማት ሂደው ታክመው የዓይን መድኃኒት ማዘዣ ወረቀት ለማግኘት ምን ያክል ጊዜ ይወስዳል	1. <50 ደቂቃ 2. ≥ 50 ደቂቃ	
3	በአቅራቢዎ ባሉት የጤና ተቋማት ውስጥ የሚሰጠው የዓይን ህክምና አገልግሎት ያረካዎታል	1. አዎ ያረካኛል 2. ገለልተኛ ነኝ 3. አያረካኝም	
ክፍል3 ፡ ከቀደመ የዓይን መድኃኒት መረጃ ጋር የተያያዙ መረጃዎች			
1	ከዚህ በፊት በዓይን ህክምና ሙያተኛ የታዘዘ የመድኃኒት ማዘዣ ወረቀት bbyte አለዎት	1. አዎ 2. የለም	
2	ከዚህ በፊት ዓይንዎትና አሞዎት ያውቃል	1. አዎ 2. የለም	
3	የዓይን መድኃኒቶች የጎንዮሽ ጉዳት እንዳላቸው ሰምተው ያውቃሉ	1. አዎ 2. አላውቅም	
4	ከዚህ በፊት ዓኑን ታምሞ በመድኃኒት የዳነ የቤተሰብ አባል ወይም ዘመድ ወይም ጓደኛ አለዎት	1. አዎ 2. የለም	
5	ከዚህ በፊት አይንዎትን ታምመው መድኃኒት ተጠቅመው ድነው ያውቃሉ	1. አዎ 2. የለም	
ክፍል4፡ የዓይን ህክምና አገልግሎት አቅርቦት ጋር የተያያዙ መረጃዎች			

1	ከቤትዎ በቅርበት የሚያገኙት መድኃኒት ቤት አለ	1. አዎ 2. የለም	
2	የዓይን መድኃኒቶችን ከመድኃኒተ ቤቶች በቀላሉ ማግኘት ይችላሉ	1. አዎ 2. አልችልም	
3	ከእርስዎ ቤት በቅርበት በሚገኘው የህክምና ተቋም በቂ የሆኑ የዓይን ህክምና ሙያተኞች አሉ	1. አዎ 2. የሉም	
4	በጤና ተቋማት ውስጥ ገብተው ህክምና አድርገው የሚስፈልግዎትን መድኃኒት እስከሚያገኙ ድረስ የሚያወጡት ወጪ በቀጥታ ከግል መድኃኒት ቤቶች ከሚገዙት መድኃኒት የበለጠ ዋጋ ይወስዳል	1. አዎ 2. የለም 3. አላውቅም	
ክፍል5፡ የዓይን መድኃኒት አጠቃቀም መረጃዎች			
1	ባለፉት ሁለት ዓመታት ውስጥ የዓይን ጠብታ፣ የዓይን ቅባት፣ ወይም ለዓይን ህመም በአፍ ወይም በመርፌ የሚወሰድ መድኃኒት ተጠቅመው ያውቃሉ መልሱ አዎ ከሆነ ወደ ተራ ቁጥር ሁለት ይለፉ አይደለም ከሆነ ግን ወደ ጥያቄ ቁጥር 8 ይለፉ	1. አዎ 2. የለም	
2	ለአንደኛው ጥያቄ መልስዎ አዎ ከሆነ ስንት ጊዜ ተጠቅመዋል	1) 1-2 2) 3-5 3) › 5	
3	የተጠቀሙትን መድኃኒት ስም ያስታውሱታል	_____ _____	
4	ለአንደኛው ጥያቄ መልስዎ አዎ ከሆነ መድኃኒቱን የተጠቀሙት ሆስፒታል ሄደው ሀኪም አዝዞልዎት ነው መልሱ አዎ ከሆነ ወደ ጥያቄ ቁጥር 7 ይለፉ አይደለም ከሆነ ግን ከተራቁጥር 4 ጀምሮ ያሉትን ጥያቄዎች ይሙሉ፡፡	1. አዎ 2. አይደለም	
5	ለአራተኛው ጥያቄ መልስዎ አይደለም ከሆነ ወደ ሆስፒታል ሄደው እንዳይታከሙ ያደረገዎት ምክንያት ምንድን ነው	1. ችግሩ ቀላል ስለሆነ 2. ጓደኞቼ ወይም ቤተሰቦቼ መክረውኝ 3. ሆስፒታል ሄዶ መታከም ጊዜ ስሚፈጅ 4. ሀስፒታል ሄዶ መታከም ብዙ ብር ስለሚጠይቅ 5. ሆስፒታል ያሉት የጤና ሙተኞች የአገልግሎት አሠጣጥ ስለማያረካኝ	

		6. ከሆስፒታል የተሻለ አገልግሎት የሚሰጡ መድኃኒት ቤቶችበቅርበት ስላሉ 7. ምክንያት የለኝም /ጊዜአጥቼ 8. ሆስፒታሉም ሆነ የዓይን ህክምና ሙያተኞች በቅርበት አለመኖራቸው 9. ለእኔ የሚያስፈልገኝን መድኃኒት ስለማውቅ 10. ሌሎች ምክንያቶች ከአንድ በላይ መምረጥ ይቻላል።	
6	መድኃኒቱን እንዲገዙ የነገረዎት ማን ነው	1. ቤተሰቦቼ /ጓደኞች/ መክረውኝ 2. ባለመድኃኒት ቤቱ ነግሮኝ 3. ከዚህ በፊት ተመሳሳይ የዓይን ህመም ታምሜ የዳንኩበትን መድኃኒት ስም ይዤ እየጠየቅሁ ገዛሁት 4. ሌላ ሰው በዚህ መድኃኒት ሲድን አይቼ 5. ከዚህ በፊት ከሆስፒታል የተሰጠኝን የመድኃኒት ማዘዣ ወረቀት ተጠቅሜ 6. ለራሴ የሚበጀኝን የዓይን መድኃኒት እኔ ስለማውቅ ከአንድ በላይ መምረጥ ይቻላል።	
7	የመድኃኒቱ ውጤት ምንድን ነበረ	1. ህመሙን አስታግሶልኛል 2. ህመሙን አባብሶብኛል 3. ለውጥአላስገኝም	

ማስታወሻ፡ መጠይቁን ሞልተው እንደጨረሱ ሃኪም ሳያማክሩ የዓይን መድሃኒቶችን መጠቀም ጉዳት ሊስከትል እንደሚችል በ 2 ደቂቃ ውስጥ ያsaweqWAቸው።

በመቀጠል አመስግነው ወደ ቀጣዩ ተሳታፊ ቤት ይለፉ።

Annex 6: Declaration

I, the undersigned, senior clinical optometry student declared that this thesis proposal is my original work in partial fulfillment of the requirement for the degree of Masters of clinical optometry.

Name: Mebratu Mulusew

Signature: ----------

Place of submission: University of Gondar, College of Medicine and Health Sciences, School of medicine, Department of Optometry

Date of Submission: ----------

This thesis proposal work has been submitted for ethical review with our approval as university advisor(s).

Advisors

Name	Signature	date
Mr. NatnaelLakachew	----------	----------
Mr. AyanawTsega	----------	----------